

The Demise of the Magic Lantern Show

by Edward W. Schneider, CPT, PhD

In *The Life of Reason*, George Santayana tells us: Progress, far from consisting of change, depends on retentiveness ... when experience is not retained, as among savages, infancy is perpetual. Those who cannot remember the past are condemned to repeat it (1906).

Extracting and applying lessons from history is rarely easy and sometimes risky. But there are moments when historical records are so compelling that they rise above mere proof to the level of interocular impact—they strike you right between the eyes.

A few years ago, I had such an experience while visiting my colleague, Professor Bruce Clark, at the University of Calgary. In their excellent library, I came across a journal on microfilm, *The Optical Magic Lantern Journal and Photographic Enlarger*. It was published in London between June 1889 and 1902. The microfilm contained the issues from 1891 to 1895. Reading the issues, several things caught my eye. First, those were exciting and dangerous times:

Explosion at a Lantern Entertainment (vol. 2, 1891)

A sad calamity occurred at Ilkeston, on the 18th ult. Councilor Jos. Scattergood had arranged to give a lantern entertainment, in order to wipe off a debt of the Pleasant Sunday Afternoons Association, and a large audience had assembled at the Methodist Church to witness “Little Nell.” Immediately upon the oxygen being turned on, a sharp crack, not unlike a pistol shot, occurred, and this was immediately followed by a tremendous explosion, which caused sad havoc. All the windows of the church, except one, were blown out, a young man almost instantly killed, and several people were injured. ...

“Little Nell” on oxygen? No, not quite. At that time, magic lantern shows used high technology to generate brilliant light sources. Bear with me while I provide a bit of the magic lantern’s history.

Magic Lantern Shows

Long, long ago, in the Renaissance, the first optical lenses were ground, permitting scientists to develop microscopes and telescopes. As the laws of optics became widely understood, people found amusing ways to apply them. The magic lantern was one of the first, and it remained popular from around 1685 to 1905. It was at first a parlor toy for the wealthy and then a tool for stage magicians (whence its name). For six years, between

1794 and 1800, a Belgian magician, Etienne Gaspard Robertson, mounted a carefully staged magic lantern show, *Fantasmagorie*, in an abandoned chapel on the grounds of an ancient Capuchin monastery in Paris. He used actual smoke, mirrors, and rear projection to terrify his audiences, so much so that the authorities had a few things to say about his selection of “ghosts,” some being so terrifying they caused ladies in the audience to faint. We may be incredulous of such reports, but only until we understand how the trick was done (Robertson eventually wrote a book, telling all). When a ghostly image is rear projected onto a rising column of smoke, it appears in three dimensions, and, because the smoke is moving, the image appears to move! In a dark chapel, late at night, everything worked to enhance the effect.

The invention of limelight in 1820 provided a brilliant light source that made projection in front of large groups quite feasible. “Limelight” is produced by playing a colorless hydrogen-oxygen flame on a small cylinder of dehydrated chalk or limestone, causing it to glow brightly. Hydrogen and oxygen were produced by chemical reaction, and stored in leather “gasbags.” The gases were pressurized by placing weights on top of the bags. To avoid explosions, the gasses were conducted separately, through rubber tubing, to the burner head, where they were mixed and burned. If the lanternist lost track of which bag was last used for hydrogen, and which for oxygen, the tubing became a fuse. When the burner was ignited.... Boom!

Photographic slides were introduced about 1850, but didn’t become widely available until more than eight years later, when photographers discovered a strong interest in scenes of distant lands and the battlegrounds of empires.

From 1840 to 1890, magic lanterns and their light sources had all the characteristics we associate with “high technology” (Figure 1):

- The apparatus was expensive—the one shown in Figure 1 had three projecting lenses to dissolve from one image to the next.
- It required experience, skill, and great care to operate effectively.
- The state of the art was evolving rapidly.

To keep up with developments, lanternists subscribed to the monthly *Optical Magic Lantern Journal*. It contained reports on new equipment, new applications, slide sets available for rent or purchase, and letters to the editor.

The Decline of Lantern Lectures

I was brought up short by a series of letters to the editor from a number of readers that all began by agreeing: “It is beyond question that lantern lectures are gradually declining in public interest....”

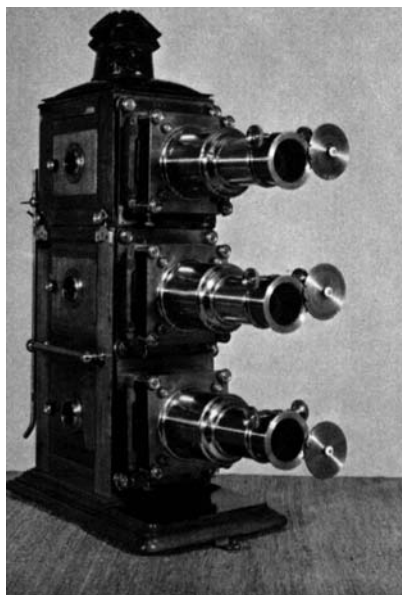


Figure 1. Triunial Projector, with Dissolving Shutters.

The writers were true believers in the value of the medium, and they had a lot to say on why it was becoming difficult to attract audiences to their shows. Here are some of the reasons they gave:

- At the doors of the ordinary photographic society or club, much of the decline of public interest may safely be placed. In the old days lectures were thoroughly prepared and delivered by able men, with experienced operators at the lantern. In those days the interest was quite as much in the lecture and lecturer as in the projections upon the sheet. So much care, too, was taken to make the whole entertainment work smoothly, that things were rehearsed beforehand. With the introduction of dry plates, the enormous increase of amateurs, and the facility with which slides could be made soon brought about an abrupt change. From one or two good, we jumped to 50 fair and indifferent to bad shows.... There is the cause, and the remedy is simple; nevertheless, the decline cannot now be stayed by any remedy whatever.
- The hiring of slides is perhaps one of the causes.... And at the cheap rate at which they are lent it is quite impossible to supply good slides.
- Readers dependent on the readings sent, which they have not seen before, on a subject perhaps of which they have no personal knowledge, no break in the monotony of the lecture except to call back some wrongly placed slide, and so excite the ridicule of the audience; everything of a level dullness depressing in the extreme. A hired lantern, worked by a volunteer who has never used one before, operator and lecturer never having seen each other until three minutes before the lecture begun, and then expect that everything should work all right and smooth, is to expect more than is reasonable.

- Now committees of societies and others who make arrangements for lecture are very greatly to blame for the state of things.

Judging by these remarks, there are several factors contributing to the lantern's demise:

- The confusion between the quality of the photography and the quality of the lantern show.
- The availability of lower-cost lanterns and easily obtained fuel tempts amateurs to buy the equipment without learning how to set it up or operate it properly.
- The availability of standard-size photographic slides for hire leads to rafts of poor-quality slide sets, distributed by mail order.
- Too many "lecturers" have become mere narrators, with no more knowledge of the topic than what they read from the supplied script.
- Both sponsors and the public are unable to judge the quality of the lantern show prior to experiencing it.
- The lack of burnished presentation technique from both lecturer and lantern operator
- The lack of preparation and practice prior to performance.

The Cost-Quality Paradox

The common thread of these criticisms is that the suppliers, lecturers, and operators are all getting so sloppy that most of the shows were more farce than education. With less expensive projection equipment, illuminating fuel, and photographic slide sets, a smaller up-front investment is required to put on a show. The lower entry barrier to the business attracts hobbyists to make the investment in equipment without making the equally necessary investment in training themselves, preparing their lectures, or practicing beforehand. With both professionals and amateurs on the same technical footing, we would expect professionals to compete by clearly distinguishing themselves in the marketplace. Usually this would lead to the formation of a guild or union, petitioning for laws to regulate and license projectionists and defining examination and training requirements for licensure. Evidently there was little reaction in this case. Even though the hazards of improper operation were all too real, the professionals just gave up. In short order, the full-time lanternists abandoned their line of work completely, and cheap electric and kerosene lanterns flooded the market to become parlor amusements for children and "visual aids" for classroom teachers.

This interpretation is supported by a display advertisement for a magic lantern kit from the 1902 Sears, Roebuck and Co. Catalogue. It is not an ad for personal entertainment; it is a business proposition. The come-on line, "Do you wish to make money with little effort?" is not intended to attract perfectionists. In the fine print, we find the idea developed: "Pleasant and honorable employment. Short hours and little effort. No soliciting and no goods to sell." Further on, we

are reassured: "No previous experience or ability as a public speaker is required, as the description of the view is printed and can be read while they are shown with the stereopticon."

Applying the Law of Supply and Demand

Economics teaches us that the widespread availability of a commodity will reduce its price, bringing the supply into balance with demand. That law applies to the magic lantern itself but not to the lantern show, which is a performance that requires ability, skill, and practice. It would appear that when a service is plentiful, the price goes down, but so does the quality, because there are fewer possible economies of scale, compared to a manufactured product. In this case, when the quality sank to an untenable level, the entire market for public lantern shows collapsed.

A number of historians have explained the rapid demise of magic lantern shows as the inevitable result of the invention and introduction of motion pictures (Ceram, 1965; Petroski, 2005). But the Lumière brothers didn't demonstrate their motion picture apparatus in Paris until 1895, and it was several years after that before kinescope parlors and motion picture theaters sprang up in England. By that time, as the letters cited make clear, lantern shows were on their last legs. They disappeared quickly, with no attempt to stave off the new competition for their audiences.

Motion pictures benefited greatly from the optical and illumination technologies pioneered by lanternists, demonstrating the continuing value of those technical elements. What films did not carry forward was the content and declamatory storytelling style of the lantern shows.

Motion pictures were successful because they solved the quality problems that plagued lantern shows; motion pictures were produced, packaged, and projected as complete shows, not as a series of snippets, sequenced by individual lecturers. Every print of the film was identical and was projected identically. Theater owners might hire piano players to provide incidental music, but they did not employ a lecturer, standing up by the screen to provide a running commentary. If explanation was needed, text frames were inserted between the filmed scenes. Motion pictures became popular rapidly because they filled a void; they had no need to compete with the precursor technology; that had self-destructed.

Parallels to Computer-Assisted Instruction and Implications for HPT Practice

The conclusions from this history can be applied to our work today. For myself, the most striking parallel is the way we use computers to train and educate. Could they be the modern equivalent of the magic lantern?

When mainframe computers became accessible to individual users, computer scientists began to experiment with instructional dialogues, a natural extension of the programmed instruction methodology developed by the founders of ISPI. If we compare the early attempts at using computers to provide instruction and read the prospectuses that those pioneers wrote, we get an entirely different vision of their potential than what we see in actual use today. From the beginning, their goal was to replace classroom instruction with an interactive experience, individually tailored to the needs and interests of each student. Their experiments and demonstration systems were designed to prove that these goals were feasible and worthwhile. Computer-assisted instruction was viewed as a major application of artificial intelligence.

Today computers are commonplace and inexpensive. But computer-mediated instruction is mostly drill-and-practice, or simple “page turners” (Merrill, 1994). In corporate settings, the justification for using computers comes not from the quality of instruction they provide but from the lower costs of delivery, compared to centralized classroom instruction. In other business applications, computers have improved the quality of service, as well as reduced the cost of doing so. Not so with instruction.

So why don't we have interactive, intelligent, individualized computer-assisted instruction today? Had it been merely a matter of writing a single set of computer programs, however complicated they might be, it would be done by now. Many people tried to do just that—for more than 30 years the landscape has been littered with computer authoring languages and systems such as Coursewriter, APL, Tutor, PAL, CAN, Thales, LOGO, PILOT, and so on. They all claimed to be powerful, efficient, easy to use, and versatile. And they were all they claimed, but only in the hands of their developers. When classroom teachers were encouraged to use them to develop their own sessions, the results were mediocre at best.

What was missing was the creativity and artistry, the product of years of experience and preparation that subject matter experts and their computer programmers brought to the development task. With one or two exceptions (Pask, 1975), automation has left untouched the basic process of extracting content areas from experts. Even if the content specification could be automated, that would still leave most of the course development work to be done by developers writing frames and explanations, just as we do now.

As computers became less expensive and as presentation software became standardized, more people could create and view slide shows, but “death by PowerPoint” has become a cliché, a close parallel to the bungled lantern lectures of the 1890s.

As the delivery technology becomes more accessible, the high performance standard that justified using the previously expensive technology evaporates, melted by the

unavoidable economic forces that work constantly to reduce delivery costs even further. As a result, the cost of developing new courses has become the focus of managerial cost-cutting, leading to bare-bones courses that barely achieve their objectives. The downward spiral continues, as training objectives are lowered to reduce the costs of both development and delivery. At some point, both the costs and the results of training will become insignificant. That fallow ground will then nurture a new approach, a new technology. I can hardly wait to see what it will be....

Where to From Here?

The only hope for avoiding endless repetition of these cycles is if both the content and instructional methods become standardized, and development of courses of study becomes centralized, as it is today for motion pictures.

So if a given instructional content could be developed once by a single facility and then used universally many times over, returning per-use revenue to the developing facility, the development costs would represent just a small fraction of the total revenue generated, and course producers could afford the motion picture equivalent of “special effects.”

If this sounds to you like the textbook-publishing model, you've missed a key distinction between lantern shows and motion pictures: The latter dispense with the lecturer entirely. Textbooks are more like rented slide sets than motion pictures; which textbook is purchased and which chapters are studied is still decided by the lecturers. As long as these conditions hold true, it will be business as usual. 🍄

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